rwoodard#064#water.ca.gov#064#INET1@MW_X400 on 03/23/98 08:44:07 AM

To: Sarah E Holmgren/User/Americas/Montgomery Watson@MW,
jheath#064#water.ca.gov#064#INET1@MW_X400
cc:
Subject: PWT pesticide toxicity

>From: Gfredlee <Gfredlee@aol.com>
>Date: Sun, 22 Mar 1998 18:06:18 EST
>To: foec@gwgate.swrcb.ca.gov
>Cc: connorv@gwgate.swrcb.ca.gov, rwoodard@goldeneye.water.ca.gov,
> de*vv@dwq.swrcb.ca.gov, lwintern@water.ca.gov,
ladeanovic@ucdavis.edu,
> russickk@pwa.co.sacramento.ca.us, Gfredlee@aol.com
>Subject: PWT pesticide toxicity
>X-Mailer: AOL 3.0 for Windows 95 sub 62
>
>
> March 22, 1998
>Christopher Foe
>CA Reg Water Qual Ctrl Brd
>Central Valley Region
>3443 Routier Road, Ste A
>Sacramento, CA 95827-3098
>
>Dear Chris:
>
> I have been following with interest the PWT efforts to define the role of
>various potential potential pollutants to be a significant cause of ecosystem
>and water quality impacts in the Delta. Based on correspondence, it appears
>that possibly my write-up on the issues that need to be considered in
>determine whether organophosphate pesticide toxicity is of significance to
>water quality and eco-systems might be appropriate to distribute to the PWT
>group. If you agree, enclosed is a copy of write-up. This is the same as I
>have sent you previously. If you want, please forward it on to the group,
>indicating that this is my assessment of what needs to be done to assessing
>the water quality and ecological significance of organophosphate pesticide
>toxicity within Delta tributaries and the Delta. While this write-up focuses
>on urban stormwater runoff pesticides, it is equally applicable to
>agriculturally-derived pesticides. If you feel I should change this write-up
>in any way to more appropriately address Delta issues, please let me know. I
>will be happy to do so. Thanks for your time to consider this matter.
>
> - - - - - - - - - - - - - - - - -
>
> March 1, 1998
>
>Kelly Moran and John Tomko,
>
>In connection with the Urban Pesticide Committee Legislative and Science and
>Monitoring sub-committee activities, I have prepared a draft statement
>covering what I feel is the approach that needs to be developed to formulate
>technically valid, cost-effective urban pesticide use programs that will
>protect the designated beneficial uses of receiving waters for urban area
>stormwater runoff without significant unnecessary restrictions on the use of
>pesticides in urban areas. I am bringing this write-up to the attention of
>members of the respective sub-committees and others who are interested in
>urban pesticide stormwater runoff toxicity issues for their review and
>comment. This write-up represents a synthesis of my 30 years of
experience of

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>work on pesticide water quality issues from both the water quality impact and
>regulatory perspectives. It focuses on formulating an approach to develop
the
>technical information base needed to more appropriately evaluate the water
>quality and ecological significance of urban area stormwater runoff OP
>pesticide caused toxicity than is being done today.
>
>-- FRED
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>Draft
>Urban Pesticide Regulation from a Technical Perspective
>
>Dr. G. Fred Lee, DEE
>G. Fred Lee & Associates
>El Macero, CA
>
>March 1998
>
> Considerable confusion exists today on the appropriate approach to follow
for
>regulating urban area use of pesticides in order to protect stormwater runoff
>receiving water aquatic life from pesticide caused toxicity. This problem
>arises in part from the fact that animal and plant pests are significantly
>adverse to urban dwellers' structures and properties. Pesticides, including
>herbicides are effective for controlling the adverse impacts of urban pests.
>However, current pesticide regulatory approaches associated with pesticide
>registration and use labeling do not necessarily eliminate pesticide caused
>toxicity to some forms of aquatic life in stormwater and fugitive
(irrigation)
>water runoff from residential and commercial properties. Stormwater runoff
>from urban areas throughout the State and in many other parts of the nation
>and in other countries have been found to be toxic to some forms of aquatic
>life such as zooplankton Ceriodaphnia. This toxicity has been found to be
due
>to organophosphate pesticides (OP) principally diazinon and chlorpyrifos.
>Current evidence indicates that labeled use of OP pesticides leads to surface
>water toxicity during stormwater runoff events. The key issue that needs to
>be addressed as part of developing a regulatory approach for urban OP
>pesticide toxicity is the water quality significance of this toxicity to the
>beneficial uses of the receiving waters.
>
> At this time the OP pesticide toxicity associated with urban stormwater
>runoff is of concern with respect to potential adverse impacts to certain
>zooplankton species (Ceriodaphnia-like organisms). While there is no doubt
>that certain zooplankton species' populations are adversely impacted by urban
>area stormwater runoff OP pesticide caused toxicity, it is unknown at this
>time whether this toxicity is significantly adverse to fish populations
>through impacting the availability of zooplankton food for larval fish. This
>is the critical area that must be evaluated through site specific studies
>which assess the spectrum of zooplankton organisms that are adversely
impacted
>by OP pesticide toxic pulses that occur with each urban stormwater runoff
>event. Once the types of zooplankton impacted by OP pesticides are known,
>then site specific evaluations need to be made in the receiving waters for
the
>urban stormwater runoff which determine the magnitude of zooplankton
>population impacts and the significance of these impacts on higher trophic
>level organisms through restrictions in their zooplankton food supply. Of
>particular concern is whether reducing or eliminating zooplankton populations

>with a sensitivity to that of Ceriodaphnia to OP pesticide toxicity
>sufficiently restricts larval fish food to impact the water quality and
>ecological characteristics of a waterbody.
>
>   The current risk assessments for diazinon and chlorpyrifos toxicity that
have
>been developed by pesticide companies and others have not adequately
addressed
>many of the key issues that need to be addressed in order to determine
whether
>OP pesticides present in urban stormwater runoff at potentially toxic
>concentrations are significantly adverse to the beneficial uses of the
>receiving waters for the stormwater runoff as well as the aquatic and
>terrestrial ecosystems associated with these waters. At this time there is a
>poor understanding of the full range of organisms that are impacted by OP
>pesticide toxicity in receiving waters for urban stormwater runoff. Further
>the actual zooplankton and larval fish population dynamics associated with
>urban stormwater runoff pesticide toxicity has not been adequately
>investigated. The macrocosm studies which have been used to claim that
the OP
>pesticide toxicity is of limited significance to fish populations do not
>provide adequate, reliable information on this issue that can be extrapolated
>to the range of conditions where there is appropriate concern about OP
>pesticide toxicity associated with urban stormwater runoff.
>
>   There is need to provide guidance to regulatory agencies, commerce,
industry,
>environmental groups and the public on how to determine whether the OP
>pesticide toxicity associated with urban stormwater runoff and fugitive
>irrigation runoff is of sufficient magnitude, duration, areal extent to
>adversely impact zooplankton species that are essential components of larval
>fish food. It is suggested that the state of California Water Resources
>Control Board and the regional boards appoint an expert panel to develop the
>guidance needed to assess on a site-specific basis, the water quality
>significance of urban stormwater runoff OP pesticide toxicity. This expert
>panel would develop guidance on the types of site specific studies that are
>needed to define the water quality - use impairment significance of urban
>stormwater runoff associated OP pesticide toxicity. The overall approach
>should follow the development of information to formulate a site specific
>ecological and water quality risk assessment associated with OP pesticide
use
>in urban areas.
>
>   The risk assessment information should provide the technical base that
>regulatory agencies can use to develop pesticide toxicity control programs
>without significant unnecessary restriction on pesticide use beyond that
>needed to protect the designated beneficial uses of receiving waters and
>downstream waters for urban area stormwater runoff. This information when
>coupled with the other components of the pesticide regulatory process will
>ultimately lead to an appropriate balance between the use of pesticides in
the
>urban environment and their impacts on the beneficial uses of receiving
waters
>for urban area stormwater runoff.
>
>   There will be need for substantial expensive multi-year laboratory and field
>studies to provide the technical information base needed to properly manage
>urban area stormwater runoff OP pesticide toxicity. It is suggested that the
>expert panel formulate an approach which would specifically address the
>mechanism for developing the funds that are needed to conduct the necessary
>laboratory and field studies. The funding for these studies should be
derived
>from the pesticide companies, pesticide formulators, applicators and the
>public who uses pesticides for urban pest control, i.e. those who benefit

from
>pesticide use. Failure to provide the necessary funding should lead to
severe
>restrictions on the use of OP pesticides in the urban environment that
lead to
>stormwater and fugitive irrigation water toxicity in the receiving waters for
>the runoff. The burden of proof on the appropriate continued use of urban
>pesticides should be shifted from the environment to those who wish to sell,
>apply and use pesticides in urban areas where stormwater runoff from the
areas
>of use leads to receiving water toxicity.
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